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**REMARKS/ARGUMENTS**

This application has been reconsidered carefully in light of the Office Action. This response is also accompanied by a document entitled “**DECLARATION OF DR. IVAN V. MENDENHALL**” and a document entitled “**DECLARATION OF DR GARY K. LUND**”, each setting forth either or both  
5 further facts and/or objective evidence in support of the patentability of the pending claims over the prior art of record. A careful reconsideration of the application by the Examiner in light of the foregoing amendments and the following remarks is respectfully requested.

This response is timely filed as it is accompanied by an appropriate  
10 Petition for Extension of Time for Filing of Response under Rule 1.136(a) and the associated fee.

This response is also accompanied with a check and/or authorization to charge deposit account for any additional claim fee due as a result of this Amendment because either the number of independent claims exceeds the number of independent  
15 claims for which fees have previously been paid, the total number of claims exceeds the total number of claims for which fees have previously been paid, or both.

### **Amendment to the Claims**

By the above, claim 72 has been added to more fully and completely claim the disclosed subject matter. Newly added claim 72 finds support throughout the originally-filed application including in or at: claims 1, 7 and 14-18, for example.

5                   No new matter has been added by the added claim.

### **Election/Restrictions**

10                   In view of the previous election/restriction requirement and corresponding response, claims 52, 53, 60, 67 and 68 have been withdrawn as directed to earlier non-elected species.

                    Claims 39-72 remain in the application with claims with claims 52, 53, 60, 67 and 68 having been withdrawn from consideration.

### **Claim Rejections - 35 U.S.C. §103**

15                   **1. Claims 39-51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,742,647 to Blau et al. (hereinafter "Blau").**

20                   The Office Action cites Blau as disclosing slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole and the addition of the mixture to other components of gas generating compositions.

The Office Action contends that:

5 It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the claimed compounds present in the composition since they will form upon reaction of two compounds that are combined in a slurry and then added to the composition. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the gas generant composition to achieve a desired result.

These rejections are respectfully traversed.

10 These rejections are based on the premise that copper hydroxide and 5-aminotetrazole, upon slurry mixing as disclosed in Blau, will react to form the metal aminotetrazole hydroxide compound of the claimed invention.

15 It is respectfully submitted that there has been no prior art showing or suggestion that copper hydroxide and 5-aminotetrazole, upon slurry mixing as disclosed in Blau, will react to form the metal aminotetrazole hydroxide compound of the claimed invention.

20 To further facilitate and expedite consideration of the application, reference is made to the accompanying document entitled "DECLARATION OF DR. IVAN V. MENDENHALL". The Declaration of Dr. Mendenhall sets forth further evidence and facts in support of the patentability of the pending claims over the prior art of record. More particularly, the Declaration of Dr. Mendenhall sets forth that the slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole, as set forth in the Office Action as disclosed in U.S. Patent

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5,742,647 to Blau et al., does not result in the formation of metal aminotetrazole hydroxides, particularly copper aminotetrazole hydroxides, in accordance with the invention.

Further, the testing and analysis set forth in the Declaration of Dr. Mendenhall presents chemical and physical values and properties (including x-ray diffraction, thermogrametric analysis and differential scanning calorimetry as well as chemical make-up) that clearly demonstrate that materials employed in the claimed invention, e.g., copper aminotetrazole hydroxide, are different and unique as compared to the materials resulting from the slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole, as set forth in the Office Action as disclosed in U.S. Patent 5,742,647 to Blau et al.

Reference is also made to the accompanying document entitled "DECLARATION OF DR. GARY K. LUND". The Declaration of Dr. Lund sets forth further evidence and/or facts in support of the patentability of the pending claims over the prior art of record. More particularly, Dr. Lund (one of the named co-inventors of U.S. Patent 5,742,647 to Blau et al.) sets forth that the slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole, as set forth in the Office Action as disclosed in U.S. Patent 5,742,647 to Blau et al., does not result in the formation of metal aminotetrazole hydroxides, particularly copper aminotetrazole hydroxides, in accordance with the invention.

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In view of the above, it is respectfully submitted that independent claim 39, which is directed to a method and requires “adding a quantity of at least one metal aminotetrazole hydroxide to a gas generant formulation whereby after the addition the gas generant formulation has an increased burn rate as compared to the gas generant formulation prior to the addition”, is not shown or suggested by the cited art. Correspondingly, claims 40-51, which claims are dependent on claim 39, are similarly not shown or suggested by the cited art.

For at least the above-stated reasons, claims 39-51 are believed patentable over the prior art of record and notification to that effect is solicited.

**2. Claims 54-59, 61-66 and 69-71 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Blau as applied to claims 39-51 above, and further in view of U.S. Patent 6,143,102 to Mendenhall et al. (hereinafter “Mendenhall”).**

The Office Action cites Mendenhall as disclosing a gas generating composition that comprises basic copper nitrate (“BCN”) and guanidine nitrate (“GN”).

The Office Action further asserts that:

It is prima facie obvious to combine two compositions, each taught for the same purpose to yield a third composition for that very purpose. [Citations omitted.]

The Office Action provides no further elaboration or discussion of this basis of rejection.

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These rejections are respectfully traversed.

Claims 54-59 and 61 are dependent on claim 39, discussed above.

Claim 62 is an independent claim with claims 63-66 and 69-71 dependent thereon.

Independent claim 62 is directed to a method and requires “adding a quantity of at  
5 least about 1 composition weight percent of copper aminotetrazole hydroxide having  
an empirical formula of  $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$  to a gas generant formulation whereby after  
the addition the gas generant formulation has an increased burn rate as compared to  
the gas generant formulation prior to the addition.”

As set forth above, Blau neither shows nor suggests the metal  
10 aminotetrazole hydroxide compound, particularly the copper aminotetrazole  
hydroxide of the claimed invention. Such shortcoming is in no way overcome by or  
as a result of the proposed combination of Mendenhall therewith.

For at least the above-stated reasons, claims 54-59, 61-66 and 69-71 are  
believed patentable over the prior art of record and notification to that effect is  
15 solicited.

#### **Withdrawn Claims**

Claims 52, 53, 60, 67 and 68 presently stand withdrawn from  
consideration.

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Claims 52, 53 and 60 are dependent on claim 39 and claims 67 and 68 are dependent on claim 62. As submitted above, claims 39 and 62 are believed to be patentable over the prior art of record. Claims 39 and 62 are believed to be generic such that upon the allowance of these claims, Applicants are entitled to consideration of those claims to additional species which are written in dependent form. In view thereof, previously withdrawn claims 52, 53, 60, 67 and 68 are believed to be in condition for allowance and notification to that effect is solicited.

#### **Newly Added Claim**

As identified above, claim 72 has been added. Claim 72 is an independent claim and is directed to a method for increasing the burn rate of a gas generant formulation and requires:

“including a quantity of copper aminotetrazole hydroxide in a gas generant formulation comprising:

a primary fuel component selected from the group consisting of copper bis-guanyl urea dinitrate, guanidine nitrate and mixtures thereof; and

a primary oxidizer component selected from the group consisting of ammonium nitrate, basic copper nitrate, copper diammine dinitrate and mixtures of ammonium nitrate and copper diammine dinitrate,

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the gas generant formulation including the quantity of copper aminotetrazole hydroxide having an increased burn rate as compared to the gas generant formulation without the inclusion of the quantity of copper aminotetrazole hydroxide.”

5                    Claim 72 is believed patentable over the prior art of record as, for example, neither Blau nor Mendenhall show or suggest a method requiring the inclusion of a quantity of copper aminotetrazole hydroxide in a gas generant formulation, let alone such inclusion in a gas generant formulation that includes a primary fuel component selected from the group consisting of copper bis-guanyl urea  
10                    dinitrate, guanidine nitrate and mixtures thereof; and a primary oxidizer component selected from the group consisting of ammonium nitrate, basic copper nitrate, copper diammine dinitrate and mixtures of ammonium nitrate and copper diammine dinitrate, particularly where the gas generant formulation including the quantity of copper aminotetrazole hydroxide having an increased burn rate as compared to the gas  
15                    generant formulation without the inclusion of the quantity of copper aminotetrazole hydroxide, as claimed.



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### **Conclusion**

Applicants intend to be fully responsive to the Action. Should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of the application.

In view of the above, favorable reconsideration and withdrawal of the outstanding rejections of the pending claims are respectfully requested in view of at least the above comments. Applicants sincerely believe that this Patent Application is now in condition for allowance and, thus, respectfully request a notification of allowance.

Respectfully submitted,



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